STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

VOL. III. MARCH, 1922 No. 3

THE RECENT INFLUENZA EPIDEMIC DIFFERENT FROM 1918 ATTACK.

So far as present indications show, the influenza that has prevailed during the last few months was very different in age distribution of fatal cases from that of the 1918-1919 invasion. In the world pandemic of 1918, the deaths were largely concentrated between the ages of 20 and 40. In the last few months the deaths have been concentrated in early life and more particularly in old age. About one-half of the deaths were those of persons over 45 years of age. In this respect they were distributed very much as pneumonia deaths generally were before the epidemic period set in. This fact is an additional indication that what has transpired during the last few months has not been a recrudescence of the serious influenza epidemic of three years ago, but is something very similar to what happens every winter with the increase in influenza cases and of primary pneumonias. If the number of cases and deaths for this year has been higher than last year it is chiefly because that for last year was exceptionally low. In fact, the rate for respiratory disease this February cannot be considered a high figure according to the standards of a few years ago.

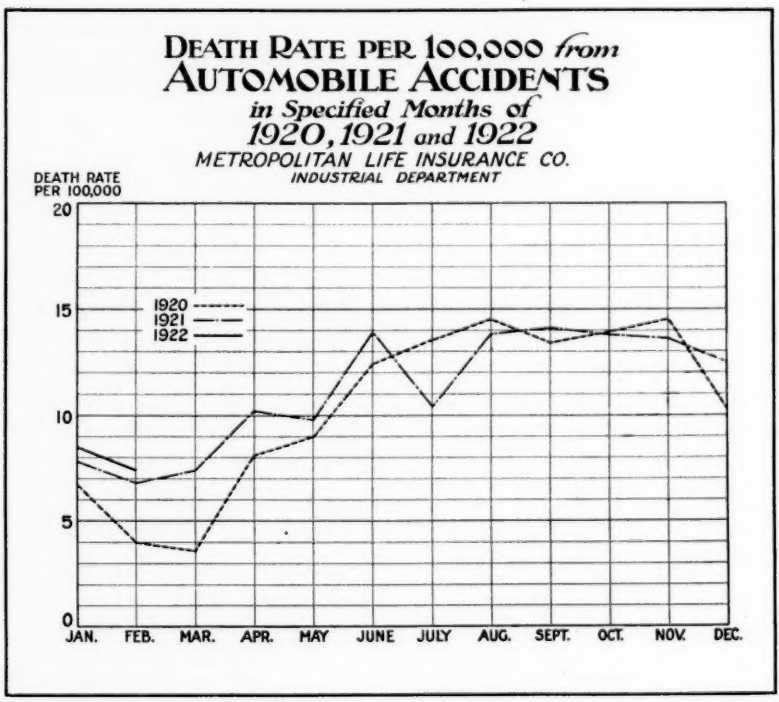
These are the conclusions reached by the Metropolitan Life Insurance Company, which has made a study of the death claims presented during four recent weeks in the cases of 1,752 decedents whose deaths were reported as due either to influenza or pneumonia.

The deaths studied occurred over a wide area; in fact, almost every state and Canadian province is represented. Nevertheless, there has been a distinct concentration in the northeastern

section of the country—more particularly along the Atlantic seaboard. Almost one-half of these 1,752 deaths of Metropolitan Industrial policyholders occurred in the states of New York, New Jersey, Pennsylvania and Massachusetts. This would indicate either that the disease was much more widespread in these northeastern states or that it was present in a more fatal form than in the rest of the country.

AUTOMOBILE FATALITIES CONTINUE TO INCREASE.

The year 1922 has opened very badly with respect to automobile fatalities. The death rates for January and February were the highest ever recorded for these months. The following chart



shows, graphically, the death rate for automobile accidents among Metropolitan Industrial policy-holders, by months, for the years 1920 and 1921 and for January and February of 1922.

SMALLPOX PREVALENCE AND CASE-FATALITY IN THE UNITED STATES AND CANADA, 1919 TO 1921.

In a number of areas in the United States and Canada, smallpox increased decidedly in reported prevalence during 1921. The growth in the smallpox menace seemed to affect chiefly the states of California, Florida, Georgia, Iowa, Kansas, Kentucky, Minnesota, North Dakota, Oklahoma and South Dakota. In this group of states, there were 36,603 cases in 1921 as compared with 25,668 in 1920—an increase of 43 per cent.

The California experience is of special interest. This state has been hampered exceedingly in the past few years by persistent, organized anti-vaccination propaganda. Just what fate is in store for the citizens of this state, if there should be a sudden shift in the virulence of the disease, cannot be foretold. In 1921, the case-fatality increased appreciably; there were 3 deaths in a thousand cases as compared with 2 per 1,000 in 1920. The large proportion of persons unprotected by vaccination, as gauged by the proportion of voters supporting the anti-vaccination amendment proposed at the 1920 elections, suggests dire results if the spark of virulent smallpox is once set to the tinder so diligently provided by anti-vaccination sentiment in the state.

In Florida and North Dakota, the number of cases in 1921 was more than twice the number reported in 1920. Georgia shows a 65 per cent. increase in case prevalence; Iowa, 52 per cent.; Minnesota, 48 per cent., and Kentucky, 32 per cent. These figures suggest what smallpox is likely to do if its progress is not materially hindered by country-wide vaccination.

Certain states where smallpox incidence was of comparatively slight numerical importance in prior years, are beginning to record a larger number of cases. In New York, the 1921 record was 606 cases as compared with 304 in 1920, and 191 in 1919. Arizona, Maryland, and Vermont also show a rising tendency in the number of cases. The 1922 record of all the states will depend upon the extent to which populations are protected against smallpox through vaccination.

The Canadian record for 1921 shows increases for Quebec and Saskatchewan Provinces. In the latter province, the number of cases in 1921 was more than twice the number reported for 1920.

The following table gives the facts available on smallpox prevalence and mortality in the United States and Canada for the years 1919 to 1921.

SMALLPOX CASES AND DEATHS.

United States and Canada, 1919 to 1921

State or Province	Cases			Deaths			Deaths per 100 Cases		
	1921	1920	1919	1921	1920	1919	1921	1920	1919
UNITED STATES									
Alabama	2712	1440	940	25	7	5	.9	.5	.5
Arizona	191	179	71	3	5	....	1.6	2.8	....
Arkansas	470	789	588	1	5	5	.2	.6	.9
California	5580	4486	2053	19	7	5	.3	.2	.2
Colorado	2579	2898	1715	37	7	4	1.4	.2	.2
Connecticut	8	2	6	....	....	....	....	....	....
Delaware	....	27	259	....	2	....	....	7.4	....
Dist. of Columbia	66	89	174	....	....	1	....	....	.6
Florida	1351	428	45	14	3	....	1.	.7	....
Georgia	2191	1328	1710	19	3	4	.9	.2	.2
Idaho	857	2556*	‡	5	5*	‡	.6	.2*	‡
Illinois	8536	8536	4871	17	16	5	.2	.2	.1
Indiana	4809	5775	3833	21	14	12	.4	.2	.3
Iowa	5 74	3403	1794	4‖	11	6	‖	.3	.3
Kansas	4630	3900	2437	43	3	1	.9	.1	....
Kentucky	2367	1792	‡	11	20	16	.5	1.1	‡
Louisiana	1419	1564	1121	66	163	172	4.7	10.4	15.3
Maine	96	282	464	....	....	2	....	....	.4
Maryland	214	179	229	....	....	....	....	....	....
Massachusetts	37	29	40	....	1	2	....	3.4	5.0
Michigan	4537	4818	2381	12	....	10	.3	....	.4
Minnesota	9375	6333	2449	25	15	9	.3	.2	.4
Mississippi	2161	3148	2502	‡	44	8	....	1.4	.3
Missouri	‡	‡	‡	‡	‡	‡	‡	‡	‡
Montana	‡	1066	970	‡	2	9	‡	.2	.9
Nebraska	3048	4135	2861	‡	10	1	....	.2	**
Nevada	235	321	89	1	....	....	.4	....	....
New Hampshire	19§	....	14	....	....	....	....	....	....
New Jersey	249	182	109	....	....	....	....	....	....
New Mexico	112	320	‡	1	5	‡	.9	1.6	‡
New York	606	304	191	1	1	1	.2	.3	.5
North Carolina	2513	2961	2322	21	28	9	.8	.9	.4
North Dakota	1778	539	211	5	....	1	.3	....	.5
Ohio	7286	7213	4107	‡	18	10	‡	.2	.2
Oklahoma	2109	1812	1926	39	19	21	1.8	1.0	1.1
Oregon	1577	2991	2626	4	10	2	.3	.3	.1
Pennsylvania	212	215	229	2	1	2	.9	.5	.9
Rhode Island	....	1*	5†	....	....	....	....	....	....
South Carolina	1055	1118*	304†	8	2*	2†	.8	.2*	.7†
South Dakota	2048	1647	850	5	2	1	.2	.1	.1
Tennessee	‡	3002	1874	10	11	13	‡	.4	.7
Texas	1872	2113*	‡	18	20*	‡	1.0	.9*	‡
Utah	‡	5123	1238	‡	14	4	‡	.3	.3
Vermont	177	101	5	1	....	....	.6	....	....
Virginia	1874	3468	1974	7	10	9	.4	.3	.5
Washington	4441	6146*	4390†	10	18*	7†	.2	.3*	.2†
West Virginia	2443	2592	2217†	3	‡	‡	.1	‡	‡
Wisconsin	5216	5656	3297	17	12	4	.3	.2	.1
Wyoming	455	911*	462†	1	1*	1†	.2	.1*	.2†
CANADA									
Alberta	987	‡	‡	‡	‡	‡	‡	‡	‡
British Columbia	108	‡	‡	....	‡	‡	....	‡	‡
Manitoba	....	134	19	....	....	....	....	....	....
New Brunswick	118	485	274	....	2	....	....	.4	....
Nova Scotia	115	279	1343	....	5	6	....	1.8	.4
Ontario	3771	5169	3049	18	33	9	.5	.6	.3
Quebec	454	377	809	‡	1	9	‡	.3	1.1
Saskatchewan	894	390	141	3	....	1	.3	....	.7

* U. S. Public Health Service Weekly Reports, Aug. 5, 1921.
† U. S. Public Health Service Weekly Reports, Feb. 25, 1921.
‡ No data available.
§ Including six cases varioloid.
‖ July 1 to Dec. 31, 1921.
** Less than .05 per 100 cases.

DISEASES OF THE TEETH AND MOUTH AS CAUSES OF ORGANIC DISEASE.

Much evidence has accumulated in recent years to suggest that dental and oral infections are often causative factors in bringing on various forms of organic disease. Isolated cases of such important conditions as rheumatic fever and various heart affections have been traced by physicians to infected teeth; and, as if to prove their contention, symptoms of these conditions have disappeared or subsided on the removal of the focus of infection in the mouth. Such isolated instances, however, have not been sufficiently numerous to permit of any safe generalization. It has seemed desirable, therefore, to make a study of this subject to determine the degree to which certain organic diseases can be traced to original foci in the mouth. During the last nine months the New York State Dental Society and the Metropolitan Life Insurance Company have cooperated in making such a study among the Industrial policyholders of the Company. Letters of inquiry were sent out to physicians in all cases during this period where the cause of death of the policyholder seemed to indicate the possibility of oral infection as a source, and the physicians were requested to indicate whether dental or oral infection was, in fact, a causative factor in the fatal disease. The results, to date, are very interesting and suggestive.

A total of 774 replies was received to 1,232 letters of inquiry. In 167 or 21.6 per cent. of the cases, the physician stated that infection of the teeth or buccal cavity was present; in 61 or 7.9 per cent. of the 774 cases they stated definitely that they considered the buccal cavity infection as a distinct causative factor to which the disease, which eventually caused death, was a sequel. Thus, out of 43 inquiries with reference to acute articular rheumatism, 14 per cent. were positive as to the buccal cause. In 98 cases of myocarditis, 8 or 8.2 per cent. were reported as positive. In 117 cases of mitral regurgitation, 11 or 9.4 per cent. were so returned. In 144 anemia cases, 10 or 7 per cent. gave mouth infection as the primary cause. In 118 cases of ulcer of the stomach, 9 or 7.2 per cent. were positive; and in 95 cases of infectious endocarditis, 8 or 8.4 per cent. were positive.

In addition to the diseases above mentioned, the replies gave indications that mouth infections frequently cause fatal arthritis deformans, osteomyelitis, septicemia, chronic gastritis and menin-

gitis. We must wait, however, for a larger number of cases in connection with these diseases. The results are negative, so far, for pericarditis and for skin diseases.

These results, while based on too small numbers to be conclusive are, obviously, very suggestive, and justify further inquiry into this subject. The impression of dentists and physicians as to the gravity of mouth infection as a cause of serious organic disease appears to be borne out by these preliminary results. The investigation will be continued until a sufficient number of cases is available to form a basis for definite conclusions as to the importance of mouth infections as known causative factors in fatal cases of several important organic diseases.

A more detailed report will be made by the New York State Dental Society at its annual meeting next May.

DEATH RATES FROM ALCOHOLISM, 1912 TO 1921.

In the January number of the *Bulletin*, we called attention to the fact that the death rate from alcoholism had increased 50 per cent. among Metropolitan Industrial policyholders in 1921, as compared with 1920. This statement has received considerable attention and it is possible that its significance may be misunderstood by those who are following up the results of prohibition. It seems desirable, therefore, to point out again that even though there has been this increase in the last year, the figure for 1921 (0.9 per 100,000 policyholders) is still very much below that for 1912 and for the other earlier years of the last decade. Even as late as 1917, the rate was 4.9 per 100,000. The first great drop in the rate from alcoholism, to be sure, occurred in 1918, two years prior to the beginning of National prohibition, but, nevertheless, at a time when many states had already enforced state prohibition. By 1919, the year immediately preceding National prohibition, the rate had dropped to 1.4 per 100,000, or to substantially one-quarter of the figure in evidence eight years before. In 1920, there was a pronounced fall in the death rate (to 0.6), followed in 1921 by the 50 per cent. increase referred to in the January *Bulletin*, which raised the rate to 0.9.

The rates for 1920 and 1921 do not include 162 deaths from wood alcohol poisoning, of which 90 occurred in 1920 and 72 in 1921. Prior to these years, it was a comparatively rare occurrence to have a death reported from this cause.

THE ACCIDENT HAZARD OF WORKING CHILDREN.

One of the most serious indictments of child labor is the heavy accident toll paid by young wage-earners. In spite of safety devices and safety campaigns, a high rate of injuries is sustained by boys and girls engaged in our mines and factories.

An analysis of the Industrial mortality experience of the Metropolitan Life Insurance Company for 1921 shows this fact very clearly. Of all the deaths of boys 13 to 17 years old who had been gainfully employed, one death out of every three was due to accidents. Among those not gainfully employed, one death out of every four was due to accidents. There was a total of 199 accidental deaths among working boys ages 13 to 17 in this year, and of this number, 43 were actually industrial accidents. These deaths resulted directly out of the work in which these boys were engaged. There were eight deaths in mines and quarries, seven in machinery accidents, three in railroad accidents, three deaths by electricity, and six in vehicular accidents, all related to occupation. Out of the 43 deaths, 12 were in Pennsylvania, and six of these were the result of coal mine accidents.

As one would expect from the existence of so many fatal accidents, there are, undoubtedly, a very large number of both permanent and temporary disabilities resulting from the employment of young workers. Unfortunately, the material of the Metropolitan is limited to fatal accidents only, but there are many other sources of information which bring this point out. Some of these are cited by *The American Child* in its November, 1921, number.

According to a recent study in Boston, nearly one child out of every twelve attending continuation schools had suffered some accident; 60 per cent. of these accidents had occurred while the children were at work—or in other words, one child in every twenty had been injured as a direct result of his employment.

In Philadelphia during the past four years, 4,663 industrial accidents to minors under 16 years of age have occurred, of which ten have been fatal. There were 59 fatal accidents to children of 16 and 17 years during this period.

In a fiscal year, 1916-1917, in the state of Massachusetts, 1,416 accidents to children under 16 years of age were reported, of which number seven were fatal. The following year this increased to 1,730 with five fatalities. In 1919-1920, the number was 1,691 with ten fatalities. Although the fatal accident rates and permanent total disability rates were lower for working children under 16 than for

older workers, a larger proportion of the accidents among the former resulted in permanent, partial disability. There were 62 such cases among the 1919-1920 accidents. Moreover, the Massachusetts figures represent only about 45 per cent. of the total number of industrial accidents to children, for accidents which did not result in the loss of at least one day's work were not tabulated.

A recent study made in a textile mill in Connecticut showed that 1,221 accidents occurred in 1920. In this report, contrary to the usual custom, the figures included accidents which did not cause any lost time. Moreover, conditions in this mill may not be typical for the textile industry in general, as the mill in question is one of the finest silk plants in the country, and, therefore, conditions would probably be more favorable than in less capably managed factories. We cite the results of this study, however, as the figures are very illuminating. In 1,164 cases the age of the workers was known, and investigation disclosed they were divided as follows: 301 accidents (over one-fourth) had been suffered by employees under 20 years of age, although this age group included only 15 per cent. of the total number employed. The total number of accidents per 100 employees, was 37.1 for workers under 15 years, and 42.9 for those between 15 and 20 years. For all others, the average was only 21.6.

Notwithstanding our "back-to-school" campaigns and our realization that entering industry at an early age only too often leads to blind-alley occupations and future industrial ineffectiveness, the number of children engaged in industry in the United States is steadily growing. If, therefore, a further analysis of mortality and accident disability of adolescents bears out the findings of this small study that the chief difference between working children and those not gainfully employed lies in their susceptibility to accidents, it certainly is necessary to intensify our safety campaigns in the factories and mills, safeguard our dangerous machines and entirely prohibit minors from engaging in those pursuits where industrial accident hazard is greatest. Obviously, if out of 43 fatal accidents in a year, seven occurred in coal mines, it follows that a coal mine is not a safe place for children to work.

HEALTH RECORD FOR FEBRUARY, 1922.

The death rate rose 11.1 per cent. in February. This was due, for the most part, to higher mortality from influenza and pneumonia, although increases were registered for all of the more important

causes of death. Influenza deaths among Metropolitan Industrial policyholders increased from 145 in January to 480 in February, the rate rising from 12.6 per 100,000 to 46.1. Deaths from pneumonia rose from 1,164 in January to 1,388, the rate increasing from 101.5 to 133.4. It should be emphasized, however, that despite the higher mortality in February, the death rate for all causes (10.1 per 1,000) was a low rate for this month. It is only slightly higher than for February of last year, and last year's figure was the lowest on record for this month.

Aside from the higher mortality from influenza and pneumonia, the most interesting developments of the month are rather sharp increases in the figures for organic heart disease and for puerperal conditions. This conforms, to some extent, with what happened during the influenza pandemic of 1918 and 1919. An increase in the incidence of influenza tends to raise the death rate for these two conditions. The heart disease rate has gone up recently to just about the same extent that it did under the much more severe influenza conditions of the earlier epidemic. The puerperal rate has not been influenced, as yet, to anything like the extent shown at that time. Nevertheless, we believe that a part of the rise (from 17.3 in January to 21.6 in February) may be safely attributed to the presence of this comparatively mild influenza epidemic.

In the general population of the large cities of the United States, the February death rate was 16.4 per 1,000 estimated population. This is 2.6 points higher than the January figure, and that for February, 1921, each of which was 13.8. Increased morbidity was reported for influenza, scarlet fever, measles, whooping cough, pneumonia and malaria. Typhoid fever, diphtheria, smallpox and poliomyelitis were less prevalent in February. Influenza increased heavily in several sections of the country. Notable examples are those of New York, Massachusetts, New Jersey, Kansas, California and Washington. Early in the month Pittsburgh reported the first severe influenza outbreak since the epidemic of 1918. It was reported that at Uniontown, Pennsylvania, about one-half of the population was ill with influenza at one time. The Instructive District Nursing Association of Boston stated that it cared for 10,000 patients during February, which is almost one-third as many as were nursed during the whole of 1921. Among other places where the influenza situation was unusually serious may be mentioned New York City, Akron, Toledo and Cleveland, Ohio, and Scranton, Pennsylvania.

Scarlet fever has been most prevalent during the month of February in New York, Illinois, New Jersey, Massachusetts, and Minnesota. The situation with reference to this disease became quite serious in the Flushing district of Queens Borough, New York City. In Wilmington, Delaware, the situation was such as to call for the closing, to children under seventeen, of all public, private and parochial schools, in addition to churches and theaters. Toward the end of the month, the disease appeared in considerable numbers in Seaford, Newark, and other communities in the lower part of Delaware.

Epidemics of measles occurred in Detroit and in Newcastle, Pennsylvania.

There was quite a decline in diphtheria in February, but despite this, large numbers of cases were reported from New York, Illinois, Massachusetts, California and New Jersey.

Smallpox was most prevalent in California, Minnesota, Georgia, Texas, and Washington. In Bedford, Iowa, a general quarantine was declared against all public buildings, with the exception of the stores.

According to reports received from abroad, influenza still prevails in some countries. Under date of February 13th, 7,000 new cases were reported as having occurred in Vienna during the prior week. The disease appears to be spreading to the northern counties of England and to Scotland. In Poland, a new type of influenza with complications of jaundice has appeared. In Chili, the smallpox situation has become so severe that the government has made an emergency appropriation for the construction of barracks for the care of patients. Much smallpox is also reported from China. Lethargic encephalitis has made its appearance in Central Russia. Over 100 cases have been reported from Moscow.

The table below displays mortality among Industrial policyholders for February and January, 1922, for February, 1921, and for the year 1921.

METROPOLITAN LIFE INSURANCE COMPANY.

Death Rates per 100,000 for Principal Causes, Premium-paying Business in Industrial Department.

(Annual Basis)

MONTHS OF JANUARY AND FEBRUARY, 1922 AND OF FEBRUARY, 1921

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED			
	Feb., 1922	Jan., 1922	Feb., 1921	Year 1921*
TOTAL—ALL CAUSES	1010.7	910.0	965.7	853.8
Typhoid fever	1.9	3.7	4.0	6.6
Measles	2.5	2.3	4.3	3.1
Scarlet fever	9.0	7.2	10.1	6.9
Whooping cough	2·9	1.9	5.7	3.9
Diphtheria	21.9	24.7	27.3	23.3
Influenza	46.1	12.6	12.7	8.6
Tuberculosis (all forms)	108.7	102.3	122.7	115.1
Tuberculosis of resp'y system	100.4	93.1	112.3	103.6
Cancer	72.5	69.0	65.7	70.4
Cerebral hemorrhage	69.1	63.7	62.2	60.9
Organic diseases of heart	153.4	137.2	126.8	115.0
Pneumonia (all forms)	133.4	101.5	106 7	66.5
Other respiratory diseases	20.9	16.0	17.0	14.1
Diarrhea and enteritis	6.3	7.7	10.3	13.9
Bright's Disease (chronic nephritis)	75.8	74.5	74.8	66.7
Puerperal state	21.6	17.3	21.4	19.5
Suicides	6.3	6.0	7.4	7.5
Homicides	4.6	7.3	5.6	6.6
Other external causes (excluding suicides and homicides)	46.7	47.9	46.0	56.2
Traumatism by automobile	7.4	8.5	6.8	11.9
All other causes	207.0	207.5	205.3	189.0

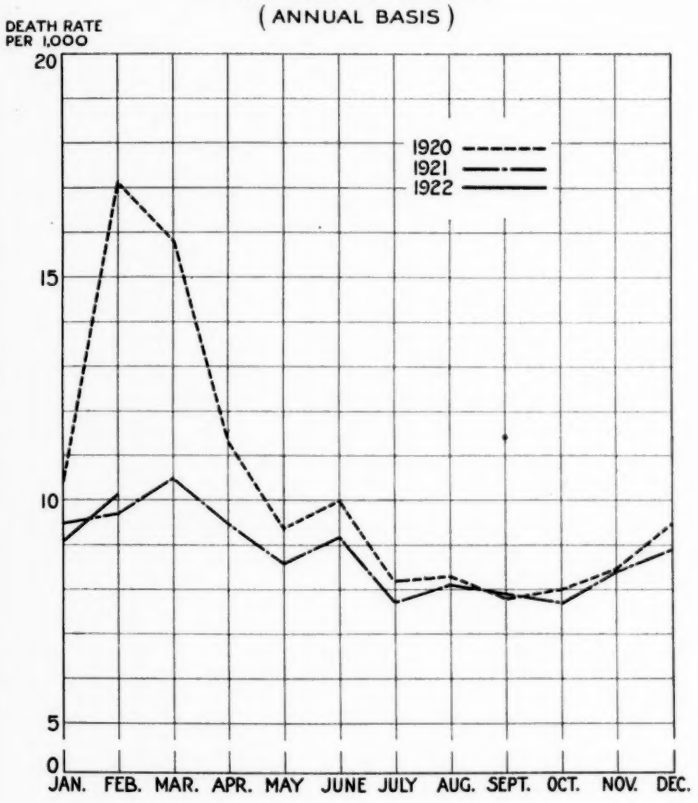
*Based on provisional estimates of lives exposed to risk in 1921.

Correspondence on the subjects discussed in these BULLETINS may be addressed to the Editor:

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City

DEATHRATE *per* 1,000 IN SPECIFIED MONTHS OF 1920, 1921, 1922

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1920	1921	1922
JAN.	10.4	9.5	9.1
FEB.	17.1	9.7	10.1
MAR.	15.8	10.5	
APR.	11.3	9.5	
MAY	9.4	8.6	
JUNE	10.0	9.2	

	1920	1921	1922
JULY	8.2	7.7	
AUG.	8.3	8.1	
SEPT.	7.8	7.9	
OCT.	8.0	7.7	
NOV.	8.5	8.4	
DEC.	9.5	8.9	

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